The Team

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Project Objective and approach

- To build a highly efficient autonomous UAV.
- Perform Warehouse Inventory Check.
- Utilizing ground effect would improve efficiency still further by 25%+.
- Proceeded using advanced lane detection techniques.
- Onboard Scanning System.
- PID Control for stability.

Design (Components and tecnique used)

- Flight Control using Pixhawk.
- Onboard computation using Raspberry Pi 3.
- PiCam used for tracking.
- Logitech C270 Camera for scanning purpose.

- Advanced Lane Detection.
- <u>Use of Quaternions instead of Cartesian.</u>
- Template Matching.
- Python Libraries for QR and Barcode scanning.
- Pixhawk's barometer used for altitude control.

Budget and Resource Consumption

- Quad Frame and Motors.
- Raspberry Pi 3.
- PiCam 2.
- Pixhawk.
- Lipo Battery(2200 MAh).
- Logitech C270.
- RC Transceiver.
- Maintenance.

- 4000
- 2500
- 1000
- 7000
- 2000
- 1300
- 3700
- 500

References

- Lane detection is taken from Udacity Self-Driving Car Nanodegree course.
- imutils from Adrian Rosebrock's blog at pyimagesearch.com.
- Template Matching referred from OpenCV documentation/.
- Bar code and QR code scanned using pyqrcode opensource library.